

Salam Afouni

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Education

Columbia University

New York, USA

PhD in Operations Research

Sept. 2023 - Present

- **Advisor:** Prof. Christian Kroer

- **Relevant Courses:** Algorithmic Game Theory, Optimization, Market Design, Network Games, Analysis of Algorithms, Stochastic Modeling

American University of Beirut

Beirut, Lebanon

BE in Industrial Engineering, OR track

Aug. 2019 - May 2023

- Minor in Applied Mathematics

- Graduated with High Distinction. Cumulative GPA **4.14**

- **Relevant Courses:** Operations Research, Advanced Optimization Techniques, Numerical Computing, Numerical Linear Algebra, Discrete Events Simulation, Algorithmic Graph Theory, Data Analytics for Operations Research

Experience

Graduate Research Assistant

New York, USA

Coffee and Convexity Lab - Columbia University

Sept. 2023 - Present

- **Research Interests:** Game Theory, Optimization, Mechanism Design, Economics and Computation

- Specific: Equilibrium Computation, Auctions Design, Optimization over Networks, Online Learning, Market Equilibrium

Research Assistant

Beirut, Lebanon

Control and Optimization Laboratory - American University Beirut

Oct. 2022 - Sept 2023

- Worked with Prof. Dany Abou Jaoude on the problem of distributed resource allocation over graphs with uncertainty

- Developed a distributed algorithm for fair resource allocation with improved performance under constant step-size

- **Academic areas:** Distributed Optimization, Resource Allocation

Researcher

Remote

Adaptive Systems Laboratory - EPFL

Oct. 2022 - June 2023

- Studied the relationship between Nash equilibrium and Pareto optimal solutions for the multi-objective optimization problem

- Investigated a biologically-inspired design for the competition problem

- **Academic areas:** Min-Max Optimization, Multi-Objective Optimization

Research Intern - EPFL Excellence in Engineering Fellowship Program

Lausanne, Switzerland

Adaptive Systems Laboratory - EPFL

July. 2022 - Sept. 2022

- Worked under the supervision of Prof. Ali H. Sayed and Dr. Flavio Pavan on the problem of Optimization Over Competing Networks

- Formulated and analyzed the local and global distributed optimization problems in the LMS setting

- **Academic areas:** Adaptive and Distributed Optimization, Game Theory

Publications

Afouni, S., Černý, J., Ling, C. K., & Kroer, C. (2025). Commitment to Sparse Strategies in Two-Player Games. AAAI 25  github.com/CoffeeAndConvexity/SparseEquilibria

Colonel Blotto with Battlefield Games

Under Review

Teaching

IEOR 4004 Optimization Models and Methods

Fall 2025

CSOR 4231 Analysis of Algorithms

Spring 2025

Projects

Columbia University

IEOR Department

- Coalition Formation in Auctions via Social Learning
- The Connection between Stable Matching and Optimal Transport

American University of Beirut

Industrial Engineering Department

- Machine Learning for Crowdfunding Success
- Queuing System Analysis for Optimal Server Allocation at Checkouts in Spinneys Supermarket, Lebanon
- Gradient Descent Convergence Guarantee by the Stable Manifold Theorem
- Movie Recommendation System
- Cost Optimization: A Poisson Process and A Markov Chain Approach

Honors and Awards

2023	LebNet EiC Scholarship , LebNet Program	USA
2019-2023	Dean's Honor List , American University of Beirut	Lebanon
2020-2023	Francois Hamze Scholarship , American University of Beirut	Lebanon
2022	EPFL Excellence in Engineering Fellowship , EPFL	Switzerland

Service

- 2025 **Reviewer**, AAAI'26
Present **Member of the PhD Council**, IEOR Department

Skills

Programming Languages	Python, MATLAB, R
Numerical Libraries	Gurobi, CVXPY, Matplotlib, NumPy, SciPy, pandas
Soft Skills	Academic writing, Presentation skills, Leadership skills, Hands-on learning

Languages

English	Professional proficiency	IELTS 8
French	Bilingual Proficiency	
Arabic	Native Proficiency	